

REMARKS

Claims 32-49 are pending in the application with claims 32-39 amended herein and new claims 40-49 added herein.

Claims 33-35 and 37-39 were objected to because of informalities that are corrected in the amendments herein. The amendment to claims 33-35 and 37-39 are not related to the statutory requirements of patentability but merely correct limitations that were previously inherent in such claims.

Claims 32-35 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Claim 32 is amended herein correcting the lack of antecedent basis for the term "barrier layer." Such amendment was not made for the purpose of narrowing the scope of claim 32 and does not effectively narrow the scope of such claim. Amended claim 32 is now definite and Applicants request withdrawal of the indefiniteness rejection in the next Office Action.

Claims 36-39 stand rejected under 35 U.S.C. 102(e) as being anticipated by Park. Applicants request reconsideration.

Amended claim 36 sets forth a capacitor construction that includes, among other features, a first capacitor electrode, an insulative barrier layer to oxygen diffusion over the first electrode, a capacitor dielectric layer over the first electrode, and a second capacitor electrode over the dielectric layer and the barrier layer. The barrier layer includes a chemisorption product of first and second precursor layers. Pages 3-4 of the Office Action state that Park discloses the capacitor construction of claim 36. However, buffer layer 122 of Park is clearly formed over both lower and upper electrodes 116 and 120, as shown in

Figs. 6, 7, and the text associated therewith. Applicants assert that Park does not disclose a second capacitor electrode over a dielectric layer and over an insulative barrier layer to oxygen diffusion where the barrier layer is also over a first electrode. Applicants further assert that Park does not suggest such a capacitor construction. At least for such reasons, Park does not anticipate claim 36 and claim 36 is further patentable over Park. Claims 37-39 depend from claim 36 and are patentable at least for such reason as well as the additional limitations of such claims not disclosed or suggest. Accordingly, Applicants request allowance of claims 36-39 in the next Office Action.

Claim 37 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Park. Applicants request reconsideration. Claim 37 depends from claim 36 established above as patentable over Park. By its dependency, claim 37 is thus also patentable as asserted above. Applicants request allowance of claim 37 in the next Office Action.

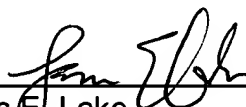
Claims 32, 33, and 35 stand rejected under 35 U.S.C. 103(a) as being obvious over Agarwal. Applicants request reconsideration. Applicants note that the present application was filed on or after November 29, 1999 and is assigned to Micron Technology, Inc. as indicated in an assignment recorded at reel 011068, frames 0799-0803 and executed on August 30, 2000. As printed on the cover sheet of Agarwal, such reference is also assigned to Micron Technology, Inc. Agarwal constitutes prior art only under 35 U.S.C. 102(e) and, pursuant to 35 U.S.C. 103(c), cannot be used in forming a rejection against the claims of the present application. Applicants request withdrawal of the obviousness rejection and allowance of claims 32, 33, and 35 in the next Office Action.

New claims 40-49 are added herein with independent claim 40 setting forth a memory array including a capacitor construction according to the present invention and independent claim 45 setting forth a plurality of memory dice, each die including a capacitor construction according to the present invention. Claims 41-44 depend from claim 40 and claims 46-49 depend from claim 45. Applicants assert that new claims 40-49 are supported throughout the present specification and by the knowledge of those of ordinary skill that a capacitor construction can be comprised by a memory array as well as by each die of a plurality of memory dice.

Applicants herein establish adequate reasons for patentability of claims 32-39. Accordingly, Applicants request allowance of all pending claims 32-49 in the next Office Action.

Respectfully submitted,

Dated: 20 May 2002

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Application Serial No. 09/882,534
Filing Date June 14, 2001
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Group Art Unit 2822
Examiner T. Thomas
Attorney's Docket No. MI22-1752
Title: Capacitor Fabrication Methods and Capacitor Constructions

VERSION WITH MARKINGS TO SHOW CHANGES MADE ACCOMPANYING
RESPONSE TO FEBRUARY 19, 2002 OFFICE ACTION

In the Claims

The claims have been amended as follows. Underlines indicate insertions and ~~strikeouts~~ indicate deletions.

32. (amended) A capacitor construction comprising a first capacitor electrode over a substrate, a capacitor dielectric layer over the ~~barrier layer~~ first electrode, a second capacitor electrode over the dielectric layer, and an atomic layer deposited insulative barrier layer to oxygen diffusion between the first and second electrodes.

33. (amended) The ~~method~~ construction of claim 32 wherein the barrier layer has a thickness of less than about 12 Angstroms.

34. (amended) The ~~method~~ construction of claim 32 wherein the barrier layer comprises Al_2O_3 .

35. (amended) The method construction of claim 32 wherein the barrier layer exhibits a K factor of greater than about 7 at 20° C.

36. (amended) A capacitor construction comprising:

a first capacitor electrode over a substrate;

an insulative barrier layer to oxygen diffusion over the first electrode, the barrier layer comprising a chemisorption product of first and second precursor layers;

a capacitor dielectric layer over the first electrode; and

a second capacitor electrode over the dielectric layer and the barrier layer.

37. (amended) The method construction of claim 36 wherein the barrier layer has a thickness of less than about 12 Angstroms.

38. (amended) The method construction of claim 36 wherein the barrier layer comprises Al_2O_3 .

39. (amended) The method construction of claim 36 wherein the barrier layer exhibits a K factor of greater than about 7 at 20° C.

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